



# TEST REPORT

According to ANSI/IES LM-80-15  
For

## Seoul Semiconductor Co., LTD

97-11, Sandan-ro 163, Danwon-gu, Ansan-si, Gyeonggi-do, Korea 15429

**Model: P40101-W27SC2D0FB3C0-0000-TSR**

<b>Report Type:</b> 9000 Hours Test Report		<b>Product Type:</b> LED Package	
<b>Test Engineer:</b>	Pote Wang	<i>Pote Wang</i>	
<b>Report Number:</b>	RSZ190828510-10		
<b>Test Date:</b>	2018-05-30 to 2019-06-16		
<b>Report Date:</b>	2019-08-29		
<b>Reviewed By:</b>	Bill Xiong / EE Engineer	<i>Bill Xiong</i>	
<b>Test Facility:</b>	Test facility was located at No.69,Pulongcun ,Puxihu Industrial Area, Tangxia , Dongguan, Guangdong, China.		
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<b>Accreditation:</b>	The IAS Accreditation Number TL-460.		

**Note:** The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

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## TABLE OF CONTENTS

<b>1 - General Information</b> .....	<b>3</b>
1.1 Description of LED Light Sources .....	3
1.2 Standards and Reference Documentations .....	5
1.3 Testing Equipment .....	5
1.4 Drive Level .....	5
1.5 Ambient Conditions for Maintenance Test .....	5
1.6 Photometric Measurement Method and Uncertainty.....	6
1.7 Statement of Traceability .....	6
1.8 Sample Set.....	7
<b>2 - Summary of Test Result</b> .....	<b>8</b>
<b>3 - Test Data</b> .....	<b>9</b>
3.1 Data Set 1, 55°C, 60mA (Lumen Maintenance) .....	9
3.2 Data Set 1, 55°C, 60mA (Forward Voltage).....	10
3.3 Data Set 1, 55°C, 60mA (Chromaticity Shift) .....	11
3.4 Data Set 2, 85°C, 60mA (Lumen Maintenance) .....	12
3.5 Data Set 2, 85°C, 60mA (Forward Voltage).....	13
3.6 Data Set 2, 85°C, 60mA (Chromaticity Shift).....	14
3.7 Data Set 3, 105°C, 60mA (Lumen Maintenance) .....	15
3.8 Data Set 3, 105°C, 60mA (Forward Voltage).....	16
3.9 Data Set 3, 105°C, 60mA (Chromaticity Shift).....	17
<b>4 - DUT Photo</b> .....	<b>18</b>
4.1 Mechanical Dimensions .....	18
4.2 DUT Photo.....	18

## 1 - General Information

### 1.1 Description of LED Light Sources

#### Sample Size:

75 PCS samples were received on 2018-05-27. The samples were numbered from 1 to 25, 26 to 50 and 51 to 75.

Manufacturer:	Shenzhen Runlite Technology Co.,Ltd
Part Number:	P40101-W27SC2D0FB3C0-0000-TSR
Part Type:	LED Package
Drive Level:	DC 60mA
Nominal CCT:	2700K
Power:	0.2W
Average Current Density per LED die:	645.83mA/mm <sup>2</sup>
Average Power Density per LED die:	1.938W/mm <sup>2</sup>
CRI:	80
Die Spacing:	N/A

#### Sampling Method:

LED samples for IESNA LM-80 testing consist of units built from a minimum of three manufacturing lots with each manufacturing lot built from different wafer lots built on non-consecutive days.

These manufacturing lots are picked to represent a wide parametric distribution.

#### Family products covered by this report:

According to *ENERGY STAR® Requirements for the Use of LM-80 Data*, the following products can be covered by this report base on the information and declaration provided by manufacturer. The information of these models shows that the covered products meet all section 4 requirements of *ENERGY STAR® Requirements for the Use of LM-80 Data* (September 28, 2017)

This report covers the following models:

Model Name	Power (W)	Total Input Current (mA)	CCT (K)	Number of Dies	Current Density per Die (mA/mm <sup>2</sup> )	Power Density per PCB (W/mm <sup>2</sup> )	Die Spacing (mm)
P40101-W27SC2D0FB3C0-0000-TSR	0.18	60	2700	1	645.83	0.045	N/A
X4010X-W22XXXXXXXXXX-XXXX-TSR	0.18	60	2200	1	645.83	0.045	N/A
X4010X-W25XXXXXXXXXX-XXXX-TSR	0.18	60	2500	1	645.83	0.045	N/A
X4010X-W27XXXXXXXXXX-XXXX-TSR	0.18	60	2700	1	645.83	0.045	N/A
X4010X-W28XXXXXXXXXX-XXXX-TSR	0.18	60	2800	1	645.83	0.045	N/A
X4010X-W29XXXXXXXXXX-XXXX-TSR	0.18	60	2900	1	645.83	0.045	N/A
X4010X-W30XXXXXXXXXX-XXXX-TSR	0.18	60	3000	1	645.83	0.045	N/A
X4010X-W31XXXXXXXXXX-XXXX-TSR	0.18	60	3100	1	645.83	0.045	N/A
X4010X-W32XXXXXXXXXX-XXXX-TSR	0.18	60	3200	1	645.83	0.045	N/A
X4010X-W33XXXXXXXXXX-XXXX-TSR	0.18	60	3300	1	645.83	0.045	N/A
X4010X-W34XXXXXXXXXX-XXXX-TSR	0.18	60	3400	1	645.83	0.045	N/A
X4010X-W35XXXXXXXXXX-XXXX-TSR	0.18	60	3500	1	645.83	0.045	N/A
X4010X-W36XXXXXXXXXX-XXXX-TSR	0.18	60	3600	1	645.83	0.045	N/A
X4010X-W37XXXXXXXXXX-XXXX-TSR	0.18	60	3700	1	645.83	0.045	N/A
X4010X-W38XXXXXXXXXX-XXXX-TSR	0.18	60	3800	1	645.83	0.045	N/A
X4010X-W39XXXXXXXXXX-XXXX-TSR	0.18	60	3900	1	645.83	0.045	N/A
X4010X-W40XXXXXXXXXX-XXXX-TSR	0.18	60	4000	1	645.83	0.045	N/A



## Bay Area Compliance Laboratories Corp. (Dongguan)

No.69, Pulongcun, Puxinhu Industrial Area Tangxia ,  
Dongguan, Guangdong, China.  
The IAS Accreditation Number TL-460

Model Name	Power (W)	Total Input Current (mA)	CCT (K)	Number of Dies	Current Density per Die (mA/mm <sup>2</sup> )	Power Density per PCB (W/mm <sup>2</sup> )	Die Spacing (mm)
X4010X-W41XXXXXXXXXX-XXXX-TSR	0.18	60	4100	1	645.83	0.045	N/A
X4010X-W42XXXXXXXXXX-XXXX-TSR	0.18	60	4200	1	645.83	0.045	N/A
X4010X-W43XXXXXXXXXX-XXXX-TSR	0.18	60	4300	1	645.83	0.045	N/A
X4010X-W44XXXXXXXXXX-XXXX-TSR	0.18	60	4400	1	645.83	0.045	N/A
X4010X-W45XXXXXXXXXX-XXXX-TSR	0.18	60	4500	1	645.83	0.045	N/A
X4010X-W46XXXXXXXXXX-XXXX-TSR	0.18	60	4600	1	645.83	0.045	N/A
X4010X-W47XXXXXXXXXX-XXXX-TSR	0.18	60	4700	1	645.83	0.045	N/A
X4010X-W48XXXXXXXXXX-XXXX-TSR	0.18	60	4800	1	645.83	0.045	N/A
X4010X-W49XXXXXXXXXX-XXXX-TSR	0.18	60	4900	1	645.83	0.045	N/A
X4010X-W50XXXXXXXXXX-XXXX-TSR	0.18	60	5000	1	645.83	0.045	N/A
X4010X-W51XXXXXXXXXX-XXXX-TSR	0.18	60	5100	1	645.83	0.045	N/A
X4010X-W52XXXXXXXXXX-XXXX-TSR	0.18	60	5200	1	645.83	0.045	N/A
X4010X-W53XXXXXXXXXX-XXXX-TSR	0.18	60	5300	1	645.83	0.045	N/A
X4010X-W54XXXXXXXXXX-XXXX-TSR	0.18	60	5400	1	645.83	0.045	N/A
X4010X-W55XXXXXXXXXX-XXXX-TSR	0.18	60	5500	1	645.83	0.045	N/A
X4010X-W56XXXXXXXXXX-XXXX-TSR	0.18	60	5600	1	645.83	0.045	N/A
X4010X-W57XXXXXXXXXX-XXXX-TSR	0.18	60	5700	1	645.83	0.045	N/A
X4010X-W58XXXXXXXXXX-XXXX-TSR	0.18	60	5800	1	645.83	0.045	N/A
X4010X-W59XXXXXXXXXX-XXXX-TSR	0.18	60	5900	1	645.83	0.045	N/A
X4010X-W60XXXXXXXXXX-XXXX-TSR	0.18	60	6000	1	645.83	0.045	N/A
X4010X-W61XXXXXXXXXX-XXXX-TSR	0.18	60	6100	1	645.83	0.045	N/A
X4010X-W62XXXXXXXXXX-XXXX-TSR	0.18	60	6200	1	645.83	0.045	N/A
X4010X-W63XXXXXXXXXX-XXXX-TSR	0.18	60	6300	1	645.83	0.045	N/A
X4010X-W64XXXXXXXXXX-XXXX-TSR	0.18	60	6400	1	645.83	0.045	N/A
X4010X-W65XXXXXXXXXX-XXXX-TSR	0.18	60	6500	1	645.83	0.045	N/A
X4010X-W66XXXXXXXXXX-XXXX-TSR	0.18	60	6600	1	645.83	0.045	N/A
X4010X-W67XXXXXXXXXX-XXXX-TSR	0.18	60	6700	1	645.83	0.045	N/A
X4010X-W68XXXXXXXXXX-XXXX-TSR	0.18	60	6800	1	645.83	0.045	N/A
X4010X-W69XXXXXXXXXX-XXXX-TSR	0.18	60	6900	1	645.83	0.045	N/A
X4010X-W70XXXXXXXXXX-XXXX-TSR	0.18	60	7000	1	645.83	0.045	N/A
X4010X-W71XXXXXXXXXX-XXXX-TSR	0.18	60	7100	1	645.83	0.045	N/A
X4010X-W72XXXXXXXXXX-XXXX-TSR	0.18	60	7200	1	645.83	0.045	N/A
X4010X-W73XXXXXXXXXX-XXXX-TSR	0.18	60	7300	1	645.83	0.045	N/A
X4010X-W74XXXXXXXXXX-XXXX-TSR	0.18	60	7400	1	645.83	0.045	N/A
X4010X-W75XXXXXXXXXX-XXXX-TSR	0.18	60	7500	1	645.83	0.045	N/A
X4010X-W76XXXXXXXXXX-XXXX-TSR	0.18	60	7600	1	645.83	0.045	N/A
X4010X-W77XXXXXXXXXX-XXXX-TSR	0.18	60	7700	1	645.83	0.045	N/A
X4010X-W78XXXXXXXXXX-XXXX-TSR	0.18	60	7800	1	645.83	0.045	N/A
X4010X-W79XXXXXXXXXX-XXXX-TSR	0.18	60	7900	1	645.83	0.045	N/A

Model Name	Power (W)	Total Input Current (mA)	CCT (K)	Number of Dies	Current Density per Die (mA/mm <sup>2</sup> )	Power Density per PCB (W/mm <sup>2</sup> )	Die Spacing (mm)
X4010X-W80XXXXXXXXXX-XXXX-TSR	0.18	60	8000	1	645.83	0.045	N/A
X4010X-W81XXXXXXXXXX-XXXX-TSR	0.18	60	8100	1	645.83	0.045	N/A
X4010X-W82XXXXXXXXXX-XXXX-TSR	0.18	60	8200	1	645.83	0.045	N/A
X4010X-W83XXXXXXXXXX-XXXX-TSR	0.18	60	8300	1	645.83	0.045	N/A
X4010X-W84XXXXXXXXXX-XXXX-TSR	0.18	60	8400	1	645.83	0.045	N/A
X4010X-W85XXXXXXXXXX-XXXX-TSR	0.18	60	8500	1	645.83	0.045	N/A
X4010X-W86XXXXXXXXXX-XXXX-TSR	0.18	60	8600	1	645.83	0.045	N/A

**Note:**

1. The applicant Seoul Semiconductor Co., LTD declare that their products with model P40101-W27SC2D0FB3C0-0000-TSR are the same to the products in report # RSZ180527501-10 and is authorized by original applicant to use their test data.
2. All the data in previous report (RSZ180527501-10) is shared in this report.

**1.2 Standards and Reference Documentations**

- ANSI/IES LM-80-15: IES Approved Method for Measuring Lumen Maintenance of LED Light Sources.
- CIE 127:2007: Measurement of LEDs
- ENERGY STAR® Requirements for the Use of LM-80 Data (This standard was not accredited by IAS)

**1.3 Testing Equipment**

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
0.3m integrating sphere	EVERFINE	Diameter 0.3m	1011119	2019-03-18	2020-03-17
Programmable Test Power for LEDs	EVERFINE	LED300E	1008002	2019-03-26	2020-03-25
High accuracy array spectroradiometer	EVERFINE	HAAS-2000	1012016T	2019-03-18	2020-03-17
Standard Light Source	EVERFINE	D062	G100278CJ7351206	2018-12-24	2019-12-24
Precision digital stabilized DC power supply	EVERFINE	WY605-V110	G115987CJ7321114	2019-03-26	2020-03-25
Multilayer aging machine	BACL	B2-270	20024	2019-03-13	2020-03-12
High power LED aging dc power supply	BACL	B12001-12	90023	2018-12-17	2019-12-17

**1.4 Drive Level**

Samples are driven with a constant direct current (DC) during maintenance test, photometric and electrical measurement. The current value was regulated to within ±3% of the specified value of the manufacturer during maintenance test, and was within ±0.5% during photometric and electrical measurement test.

**1.5 Ambient Conditions for Maintenance Test**

For lumen maintenance test, samples within one data set, were installed on cooling boards in thermal chambers with minimal ambient airflow. The case temperature and ambient temperature was monitored by thermocouples which one was soldered to the coldest DUTs' case (TMP<sub>LED</sub>) location, while the other is mounted at a distance of 5 mm above the TMP location.

During life testing,  $TMP_{LED}$  of the coldest LEDs were maintained at a temperature that was greater than or equal to  $2^{\circ}C$  below the corresponding nominal case temperature. Surrounding air was maintained at a temperature that was greater than or equal to  $5^{\circ}C$  below the corresponding nominal case temperature. Thermocouples were shielded from direct DUT optical radiation and comply with ASTM E230 Table 1 "Special Limits".

Samples were connected to DC power supply in series circuits with a constant current. The forward current was regulated to within  $\pm 3\%$  of the specified value of the manufacturer.

The relative humidity within chamber was kept less than 65% during test.

For photometry measurement, the ambient temperature during test was set to  $25^{\circ}C \pm 2^{\circ}C$ , RH <65%.

## 1.6 Photometric Measurement Method and Uncertainty

Integrating sphere and spectroradiometer is used to measure luminous flux and chromaticity coordinate  $u'v'$ .  $2\pi$  measurement was used and sample was driven by DC power supply. The forward current was regulated to within  $\pm 0.5\%$  of the nominal value. The test system was calibrated by halogen reference lamp. The ambient temperature during test was set to  $25^{\circ}C \pm 2^{\circ}C$ , RH <65%. The temperature measurement point was located in the sphere and the temperature was detected by a temperature probe.

The uncertainty of the light output measurements is  $U=1.59\%$  ( $K=2$ ), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is  $U=21K$  ( $K=2$ ), at the 95% confidence level.

The uncertainty of the temperature is  $U=0.8671^{\circ}C$  ( $K=2$ ), at the 95% confidence level.

## 1.7 Statement of Traceability

Bay Area Compliance Laboratories Corp. (Dongguan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

## 1.8 Sample Set

### Data Set 1: 55°C, 60mA

Part Number: P40101-W27SC2D0FB3C0-0000-TSR  
Number of Units: 25  
Case Temperature: >53°C  
Ambient Temperature: >50°C  
Life Test Drive Current: 60mA  
Measurement Current: 60mA

### Data Set 2: 85°C, 60mA

Part Number: P40101-W27SC2D0FB3C0-0000-TSR  
Number of Units: 25  
Case Temperature: >83°C  
Ambient Temperature: >80°C  
Life Test Drive Current: 60mA  
Measurement Current: 60mA

### Data Set 3: 105°C, 60mA

Part Number: P40101-W27SC2D0FB3C0-0000-TSR  
Number of Units: 25  
Case Temperature: >103°C  
Ambient Temperature: >100°C  
Life Test Drive Current: 60mA  
Measurement Current: 60mA

## 2 - Summary of Test Result

Data Set:	Sample Size	Failures Observed:	Test Interval	Test Duration	$\alpha$	$\beta$	Reported TM-21 L <sub>70</sub> Lifetime	Reported TM-21 L <sub>90</sub> Lifetime
1	25	0	1000hrs	9000hrs	2.442E-06	1.003	>54000hrs	44,000hrs
2	25	0	1000hrs	9000hrs	2.954E-06	1.003	>54000hrs	37,000hrs
3	25	0	1000hrs	9000hrs	3.804E-06	1.002	>54000hrs	28,000hrs

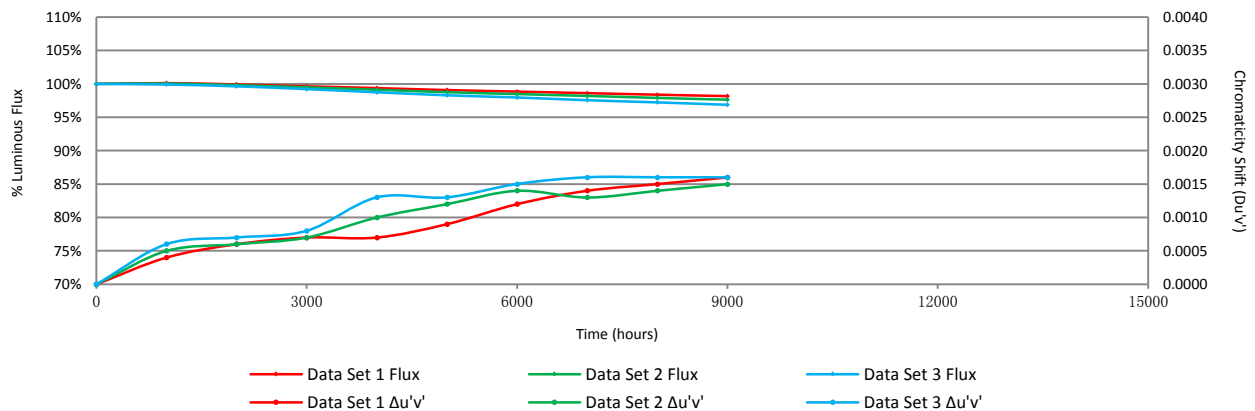
Average Lumen Maintenance (Percentage of Initial Luminous Flux)

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	100.11%	99.91%	99.63%	99.36%	99.06%	98.83%	98.59%	98.36%	98.14%
2	100.04%	99.80%	99.48%	99.12%	98.76%	98.48%	98.21%	97.91%	97.65%
3	99.92%	99.65%	99.23%	98.75%	98.30%	97.97%	97.56%	97.23%	96.87%

Average Chromaticity Shift

Data Set:	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.0004	0.0006	0.0007	0.0007	0.0009	0.0012	0.0014	0.0015	0.0016
2	0.0005	0.0006	0.0007	0.0010	0.0012	0.0014	0.0013	0.0014	0.0015
3	0.0006	0.0007	0.0008	0.0013	0.0013	0.0015	0.0016	0.0016	0.0016

Average Lumen Maintenance and Chromaticity Shift VS. Time





### 3 - Test Data

#### 3.1 Data Set 1, 55°C, 60mA (Lumen Maintenance)

No.	Φ(lm)	Lumen Maintenance (%)								
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	26.12	100.11	99.73	99.54	99.43	99.16	98.74	98.55	98.28	97.93
2	25.94	100.19	99.88	99.85	99.42	98.73	98.34	98.11	97.65	97.42
3	26.41	100.11	100.04	99.77	99.47	98.90	98.67	98.49	98.30	98.14
4	26.31	100.11	99.96	99.62	99.35	99.20	99.13	98.71	98.67	98.63
5	25.80	100.12	99.96	99.53	99.38	98.99	98.49	98.06	97.83	97.60
6	26.12	100.04	99.92	99.08	98.51	97.93	97.70	97.55	97.24	96.98
7	25.73	100.08	99.84	99.42	99.26	98.99	98.83	98.76	98.17	98.02
8	26.41	99.89	99.77	99.28	99.13	98.90	98.71	98.52	98.26	98.07
9	26.48	100.04	99.89	99.66	99.58	99.47	99.32	99.06	98.72	98.41
10	26.26	100.23	100.04	99.81	99.54	99.35	99.05	98.82	98.67	98.44
11	25.58	100.23	100.20	99.65	99.53	99.34	99.30	99.14	98.91	98.71
12	25.53	99.80	99.76	99.73	99.37	99.10	99.02	98.90	98.79	98.35
13	26.38	100.04	99.92	99.62	99.13	98.86	98.64	98.48	98.10	97.80
14	26.03	100.23	100.04	99.92	99.46	99.23	99.12	98.54	98.39	98.23
15	26.12	100.19	99.89	99.54	99.39	99.20	99.04	98.62	98.32	98.12
16	25.89	100.15	99.77	99.73	99.50	99.38	99.00	98.84	98.73	98.49
17	25.99	100.23	100.19	100.12	99.54	99.27	99.15	98.65	98.54	98.00
18	25.85	100.08	99.77	99.61	99.38	99.15	98.96	98.88	98.61	98.30
19	25.43	100.16	99.84	99.65	99.29	99.13	98.78	98.66	98.58	98.47
20	26.33	100.34	100.11	99.73	99.43	99.39	99.35	99.16	98.94	98.75
21	25.97	100.39	100.04	99.85	99.19	98.73	98.15	97.77	97.54	97.46
22	25.54	99.30	99.18	98.98	98.75	98.43	98.39	98.36	98.20	97.89
23	26.06	100.12	99.88	99.58	99.50	99.19	99.00	98.77	98.50	98.31
24	26.37	100.34	100.04	99.77	99.66	99.01	98.79	98.67	98.52	98.33
25	25.44	100.35	100.20	99.80	99.69	99.49	99.10	98.74	98.62	98.55
Avg.	26.00	100.11	99.91	99.63	99.36	99.06	98.83	98.59	98.36	98.14
Med.	26.03	100.12	99.92	99.65	99.42	99.15	98.96	98.66	98.50	98.23
st dev	0.33	0.22	0.21	0.25	0.26	0.35	0.39	0.39	0.43	0.43
Min.	25.43	99.30	99.18	98.98	98.51	97.93	97.70	97.55	97.24	96.98
Max.	26.48	100.39	100.20	100.12	99.69	99.49	99.35	99.16	98.94	98.75

**3.2 Data Set 1, 55°C, 60mA (Forward Voltage)**

No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	3.180	3.177	3.164	3.188	3.181	3.179	3.180	3.187	3.185	3.184
2	3.188	3.184	3.167	3.164	3.178	3.189	3.168	3.187	3.165	3.168
3	3.170	3.177	3.169	3.171	3.173	3.179	3.168	3.175	3.166	3.167
4	3.186	3.182	3.166	3.198	3.181	3.182	3.170	3.194	3.168	3.167
5	3.211	3.178	3.166	3.159	3.166	3.179	3.166	3.172	3.168	3.168
6	3.223	3.183	3.168	3.158	3.164	3.167	3.168	3.152	3.168	3.168
7	3.201	3.163	3.192	3.140	3.137	3.143	3.156	3.156	3.146	3.150
8	3.205	3.181	3.166	3.159	3.154	3.158	3.173	3.180	3.166	3.166
9	3.174	3.184	3.167	3.153	3.145	3.156	3.169	3.160	3.166	3.168
10	3.192	3.178	3.166	3.158	3.159	3.156	3.162	3.155	3.164	3.165
11	3.192	3.175	3.162	3.151	3.156	3.163	3.165	3.166	3.164	3.165
12	3.196	3.171	3.163	3.153	3.145	3.148	3.156	3.140	3.157	3.158
13	3.194	3.176	3.166	3.158	3.183	3.153	3.155	3.140	3.161	3.162
14	3.204	3.180	3.168	3.162	3.155	3.157	3.166	3.148	3.166	3.166
15	3.194	3.183	3.162	3.150	3.160	3.151	3.163	3.136	3.156	3.157
16	3.198	3.177	3.167	3.153	3.142	3.149	3.175	3.139	3.157	3.161
17	3.204	3.176	3.164	3.155	3.144	3.167	3.164	3.147	3.160	3.162
18	3.190	3.176	3.155	3.143	3.133	3.146	3.154	3.132	3.151	3.152
19	3.211	3.176	3.168	3.162	3.145	3.158	3.164	3.149	3.166	3.165
20	3.217	3.188	3.169	3.168	3.160	3.158	3.170	3.172	3.170	3.169
21	3.198	3.176	3.165	3.157	3.144	3.157	3.164	3.151	3.163	3.159
22	3.235	3.188	3.172	3.165	3.152	3.158	3.171	3.159	3.168	3.164
23	3.207	3.176	3.165	3.159	3.143	3.157	3.164	3.193	3.163	3.163
24	3.197	3.177	3.165	3.161	3.145	3.152	3.162	3.148	3.163	3.161
25	3.216	3.175	3.171	3.166	3.143	3.158	3.162	3.178	3.164	3.163
Avg.	3.199	3.178	3.167	3.160	3.156	3.161	3.165	3.161	3.164	3.164
Med.	3.198	3.177	3.166	3.159	3.154	3.158	3.165	3.156	3.164	3.165
st dev	0.015	0.005	0.006	0.012	0.015	0.012	0.006	0.019	0.007	0.006
Min.	3.170	3.163	3.155	3.140	3.133	3.143	3.154	3.132	3.146	3.150
Max.	3.235	3.188	3.192	3.198	3.183	3.189	3.180	3.194	3.185	3.184

**3.3 Data Set 1, 55°C, 60mA (Chromaticity Shift)**

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )								
	0hr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
1	0.2593	0.5315	2750	0.0004	0.0006	0.0007	0.0014	0.0016	0.0018	0.0016	0.0015	0.0014
2	0.2582	0.5277	2790	0.0003	0.0003	0.0003	0.0008	0.0013	0.0015	0.0015	0.0013	0.0012
3	0.2551	0.5269	2862	0.0002	0.0004	0.0007	0.0012	0.0017	0.0019	0.0018	0.0017	0.0015
4	0.2561	0.5312	2818	0.0001	0.0002	0.0004	0.0008	0.0014	0.0015	0.0016	0.0015	0.0013
5	0.2589	0.5296	2766	0.0004	0.0006	0.0006	0.0012	0.0017	0.0018	0.0018	0.0017	0.0016
6	0.2565	0.5298	2816	0.0001	0.0002	0.0004	0.0009	0.0014	0.0016	0.0017	0.0013	0.0012
7	0.2608	0.5284	2731	0.0000	0.0002	0.0005	0.0007	0.0015	0.0015	0.0015	0.0014	0.0011
8	0.2562	0.5283	2830	0.0001	0.0004	0.0004	0.0006	0.0011	0.0015	0.0016	0.0015	0.0013
9	0.2550	0.5287	2855	0.0007	0.0008	0.0008	0.0009	0.0012	0.0017	0.0017	0.0015	0.0014
10	0.2547	0.5276	2868	0.0006	0.0009	0.0012	0.0005	0.0007	0.0013	0.0016	0.0014	0.0012
11	0.2590	0.5299	2764	0.0001	0.0002	0.0005	0.0010	0.0014	0.0014	0.0020	0.0021	0.0020
12	0.2598	0.5302	2745	0.0009	0.0009	0.0011	0.0008	0.0005	0.0010	0.0011	0.0010	0.0008
13	0.2588	0.5313	2761	0.0003	0.0004	0.0006	0.0005	0.0010	0.0016	0.0018	0.0016	0.0018
14	0.2604	0.5271	2745	0.0004	0.0005	0.0005	0.0004	0.0009	0.0015	0.0016	0.0019	0.0018
15	0.2586	0.5305	2768	0.0004	0.0005	0.0007	0.0006	0.0008	0.0014	0.0016	0.0018	0.0016
16	0.2604	0.5288	2738	0.0005	0.0006	0.0009	0.0016	0.0018	0.0021	0.0029	0.0030	0.0028
17	0.2595	0.5308	2749	0.0006	0.0006	0.0009	0.0005	0.0001	0.0005	0.0012	0.0018	0.0016
18	0.2600	0.5289	2745	0.0004	0.0007	0.0005	0.0006	0.0003	0.0007	0.0011	0.0016	0.0018
19	0.2591	0.5275	2772	0.0004	0.0006	0.0004	0.0004	0.0002	0.0006	0.0012	0.0018	0.0021
20	0.2568	0.5308	2807	0.0007	0.0009	0.0009	0.0005	0.0001	0.0004	0.0008	0.0011	0.0017
21	0.2593	0.5294	2759	0.0006	0.0008	0.0007	0.0005	0.0003	0.0004	0.0008	0.0013	0.0019
22	0.2626	0.5282	2695	0.0008	0.0009	0.0011	0.0006	0.0004	0.0004	0.0005	0.0011	0.0016
23	0.2607	0.5290	2730	0.0005	0.0008	0.0007	0.0005	0.0002	0.0006	0.0008	0.0013	0.0017
24	0.2546	0.5285	2866	0.0004	0.0005	0.0006	0.0006	0.0001	0.0006	0.0010	0.0014	0.0019
25	0.2639	0.5272	2673	0.0005	0.0005	0.0005	0.0005	0.0002	0.0004	0.0008	0.0013	0.0018
Avg.	0.2586	0.5291	2776	0.0004	0.0006	0.0007	0.0007	0.0009	0.0012	0.0014	0.0015	0.0016
Med.	0.2590	0.5289	2764	0.0004	0.0006	0.0006	0.0006	0.0009	0.0014	0.0016	0.0015	0.0016
st dev	0.0024	0.0014	52	0.0002	0.0002	0.0002	0.0003	0.0006	0.0006	0.0005	0.0004	0.0004
Min.	0.2546	0.5269	2673	0.0000	0.0002	0.0003	0.0004	0.0001	0.0004	0.0005	0.0010	0.0008
Max.	0.2639	0.5315	2868	0.0009	0.0009	0.0012	0.0016	0.0018	0.0021	0.0029	0.0030	0.0028

**3.4 Data Set 2, 85°C, 60mA (Lumen Maintenance)**

No.	Φ(lm)	Lumen Maintenance (%)								
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	26.18	99.89	99.73	99.66	99.62	99.27	99.05	98.89	98.66	98.47
27	25.75	100.31	100.19	99.65	99.53	99.22	99.03	98.83	98.72	98.41
28	25.97	100.08	99.85	99.38	98.69	98.00	97.69	97.42	97.27	97.07
29	26.16	99.66	99.31	98.89	98.55	98.17	97.97	97.74	97.40	97.06
30	26.01	100.12	99.85	99.65	99.50	99.31	98.89	98.35	98.00	97.89
31	25.88	99.81	99.69	99.50	99.46	99.03	99.00	98.69	98.38	98.26
32	25.72	99.84	99.77	99.49	99.34	98.64	98.29	98.06	97.94	97.78
33	25.80	100.19	99.84	99.65	99.57	99.22	98.91	98.68	98.41	98.14
34	26.30	99.85	99.43	98.86	98.48	98.10	97.95	97.60	97.22	96.88
35	25.86	100.08	99.85	99.77	99.11	98.41	98.11	97.76	97.53	97.22
36	25.81	99.73	99.42	99.07	98.18	98.02	97.79	97.52	97.21	96.86
37	25.74	100.19	100.12	100.08	99.57	99.46	98.99	98.95	98.56	98.25
38	25.74	99.96	99.61	99.57	99.15	98.56	98.21	98.14	97.90	97.67
39	26.20	100.04	99.92	99.73	99.62	99.47	99.16	98.89	98.59	98.32
40	25.63	100.27	99.88	99.41	99.30	99.06	98.56	98.09	97.85	97.50
41	25.89	100.12	100.04	99.38	99.07	98.92	98.57	98.30	97.91	97.53
42	25.83	100.12	100.04	99.34	98.53	98.26	97.99	97.64	97.37	97.10
43	26.17	100.08	99.92	99.31	98.70	98.13	97.63	97.59	97.25	97.06
44	26.23	100.19	99.85	99.77	99.62	99.28	99.24	98.89	98.55	98.36
45	26.24	100.08	99.77	99.20	98.97	98.82	98.67	98.29	97.90	97.56
46	25.78	100.35	99.84	99.73	99.34	98.91	98.49	98.06	97.75	97.44
47	25.65	99.84	99.81	99.49	98.83	98.36	98.17	97.82	97.47	97.12
48	26.14	100.15	99.89	99.20	98.89	98.39	98.13	97.86	97.48	97.28
49	25.68	100.12	99.92	99.77	99.10	98.95	98.75	98.48	98.25	98.01
50	26.02	99.92	99.58	99.50	99.19	99.12	98.81	98.62	98.27	97.96
Avg.	25.94	100.04	99.80	99.48	99.12	98.76	98.48	98.21	97.91	97.65
Med.	25.88	100.08	99.85	99.50	99.15	98.91	98.56	98.14	97.90	97.56
st dev	0.21	0.18	0.21	0.29	0.42	0.49	0.49	0.50	0.51	0.53
Min.	25.63	99.66	99.31	98.86	98.18	98.00	97.63	97.42	97.21	96.86
Max.	26.30	100.35	100.19	100.08	99.62	99.47	99.24	98.95	98.72	98.47

**3.5 Data Set 2, 85°C, 60mA (Forward Voltage)**

No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	3.202	3.173	3.176	3.179	3.174	3.178	3.169	3.178	3.164	3.162
27	3.214	3.220	3.208	3.234	3.209	3.216	3.215	3.196	3.206	3.205
28	3.224	3.208	3.202	3.230	3.205	3.208	3.203	3.181	3.196	3.198
29	3.211	3.202	3.194	3.221	3.197	3.225	3.199	3.176	3.190	3.190
30	3.239	3.205	3.203	3.206	3.209	3.207	3.201	3.209	3.201	3.200
31	3.221	3.191	3.182	3.213	3.189	3.192	3.187	3.213	3.210	3.210
32	3.250	3.208	3.195	3.229	3.205	3.210	3.200	3.203	3.195	3.194
33	3.210	3.209	3.195	3.227	3.208	3.209	3.201	3.188	3.195	3.196
34	3.207	3.207	3.206	3.206	3.204	3.200	3.204	3.208	3.203	3.202
35	3.243	3.205	3.196	3.232	3.201	3.208	3.207	3.198	3.194	3.196
36	3.297	3.215	3.206	3.226	3.226	3.225	3.224	3.225	3.221	3.220
37	3.196	3.205	3.194	3.229	3.202	3.210	3.202	3.184	3.194	3.191
38	3.221	3.212	3.214	3.245	3.211	3.214	3.207	3.182	3.199	3.198
39	3.198	3.206	3.213	3.238	3.206	3.198	3.204	3.195	3.192	3.196
40	3.184	3.176	3.185	3.187	3.181	3.218	3.211	3.191	3.197	3.194
41	3.231	3.205	3.196	3.228	3.206	3.219	3.205	3.190	3.190	3.193
42	3.214	3.203	3.196	3.236	3.203	3.212	3.203	3.203	3.195	3.194
43	3.208	3.203	3.194	3.227	3.204	3.205	3.199	3.185	3.192	3.194
44	3.181	3.195	3.185	3.212	3.192	3.196	3.193	3.175	3.181	3.185
45	3.209	3.207	3.198	3.230	3.205	3.203	3.202	3.192	3.191	3.195
46	3.213	3.201	3.192	3.226	3.199	3.200	3.194	3.192	3.188	3.191
47	3.236	3.208	3.195	3.229	3.204	3.201	3.204	3.197	3.194	3.192
48	3.210	3.211	3.201	3.234	3.211	3.216	3.201	3.193	3.197	3.197
49	3.208	3.207	3.201	3.237	3.208	3.215	3.203	3.188	3.200	3.195
50	3.206	3.200	3.193	3.223	3.200	3.205	3.194	3.194	3.193	3.190
Avg.	3.217	3.203	3.197	3.223	3.202	3.208	3.201	3.193	3.195	3.195
Med.	3.211	3.205	3.196	3.228	3.204	3.208	3.202	3.192	3.195	3.195
st dev	0.024	0.010	0.009	0.015	0.010	0.011	0.010	0.012	0.010	0.010
Min.	3.181	3.173	3.176	3.179	3.174	3.178	3.169	3.175	3.164	3.162
Max.	3.297	3.220	3.214	3.245	3.226	3.225	3.224	3.225	3.221	3.220

**3.6 Data Set 2, 85°C, 60mA (Chromaticity Shift)**

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )								
	Ohr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
26	0.2575	0.5288	2800	0.0004	0.0005	0.0005	0.0004	0.0003	0.0006	0.0010	0.0012	0.0014
27	0.2621	0.5292	2702	0.0004	0.0005	0.0005	0.0004	0.0004	0.0005	0.0008	0.0014	0.0011
28	0.2624	0.5297	2693	0.0004	0.0005	0.0006	0.0005	0.0003	0.0004	0.0007	0.0013	0.0013
29	0.2610	0.5315	2715	0.0003	0.0004	0.0003	0.0004	0.0004	0.0007	0.0010	0.0016	0.0016
30	0.2595	0.5284	2759	0.0005	0.0005	0.0005	0.0011	0.0019	0.0017	0.0012	0.0009	0.0007
31	0.2577	0.5301	2790	0.0004	0.0004	0.0007	0.0011	0.0012	0.0011	0.0009	0.0013	0.0017
32	0.2600	0.5284	2748	0.0005	0.0006	0.0006	0.0010	0.0012	0.0014	0.0013	0.0012	0.0015
33	0.2560	0.5277	2837	0.0008	0.0008	0.0008	0.0007	0.0009	0.0011	0.0011	0.0011	0.0013
34	0.2579	0.5294	2789	0.0003	0.0004	0.0006	0.0007	0.0004	0.0002	0.0004	0.0003	0.0005
35	0.2581	0.5279	2791	0.0005	0.0006	0.0009	0.0011	0.0013	0.0014	0.0014	0.0013	0.0016
36	0.2587	0.5308	2765	0.0005	0.0005	0.0007	0.0010	0.0011	0.0009	0.0012	0.0012	0.0017
37	0.2592	0.5272	2770	0.0007	0.0007	0.0007	0.0010	0.0015	0.0014	0.0013	0.0010	0.0017
38	0.2601	0.5319	2732	0.0004	0.0004	0.0004	0.0011	0.0015	0.0013	0.0013	0.0012	0.0017
39	0.2558	0.5300	2830	0.0004	0.0004	0.0007	0.0009	0.0023	0.0024	0.0021	0.0022	0.0022
40	0.2577	0.5280	2800	0.0006	0.0007	0.0008	0.0009	0.0026	0.0033	0.0034	0.0032	0.0035
41	0.2618	0.5282	2712	0.0003	0.0004	0.0007	0.0012	0.0012	0.0013	0.0012	0.0010	0.0014
42	0.2577	0.5320	2780	0.0005	0.0005	0.0007	0.0011	0.0014	0.0014	0.0011	0.0014	0.0013
43	0.2590	0.5270	2776	0.0004	0.0004	0.0007	0.0014	0.0016	0.0018	0.0016	0.0018	0.0017
44	0.2561	0.5322	2813	0.0008	0.0010	0.0012	0.0010	0.0008	0.0013	0.0012	0.0014	0.0012
45	0.2601	0.5286	2746	0.0003	0.0004	0.0009	0.0013	0.0013	0.0017	0.0014	0.0016	0.0014
46	0.2594	0.5299	2754	0.0004	0.0007	0.0011	0.0013	0.0012	0.0015	0.0013	0.0016	0.0016
47	0.2595	0.5295	2754	0.0008	0.0010	0.0013	0.0012	0.0010	0.0012	0.0010	0.0011	0.0011
48	0.2611	0.5304	2718	0.0003	0.0004	0.0007	0.0013	0.0019	0.0018	0.0015	0.0019	0.0019
49	0.2637	0.5324	2656	0.0004	0.0005	0.0007	0.0014	0.0014	0.0017	0.0016	0.0018	0.0014
50	0.2636	0.5303	2667	0.0004	0.0006	0.0008	0.0013	0.0015	0.0016	0.0014	0.0018	0.0015
Avg.	0.2594	0.5296	2756	0.0005	0.0006	0.0007	0.0010	0.0012	0.0014	0.0013	0.0014	0.0015
Med.	0.2594	0.5295	2759	0.0004	0.0005	0.0007	0.0011	0.0012	0.0014	0.0012	0.0013	0.0015
st dev	0.0022	0.0016	48	0.0002	0.0002	0.0002	0.0003	0.0006	0.0006	0.0006	0.0005	0.0006
Min.	0.2558	0.5270	2656	0.0003	0.0004	0.0003	0.0004	0.0003	0.0002	0.0004	0.0003	0.0005
Max.	0.2637	0.5324	2837	0.0008	0.0010	0.0013	0.0014	0.0026	0.0033	0.0034	0.0032	0.0035

**3.7 Data Set 3, 105°C, 60mA (Lumen Maintenance)**

No.	Φ(lm)	Lumen Maintenance (%)								
	Ohr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
51	25.95	100.12	99.77	98.92	98.23	98.00	97.73	97.34	96.99	96.72
52	25.95	100.19	99.96	99.50	98.88	98.84	98.69	98.46	98.23	97.80
53	25.54	99.88	99.73	99.14	98.86	98.08	97.53	97.14	96.75	96.44
54	25.40	100.04	99.45	98.94	98.66	98.58	98.03	97.72	97.56	97.17
55	25.30	99.96	99.72	99.49	99.45	98.74	98.50	98.22	97.87	97.63
56	25.59	100.04	99.92	99.69	99.26	99.18	98.75	98.28	97.89	97.54
57	25.46	100.16	100.08	100.04	99.10	98.82	98.35	97.80	97.37	97.05
58	25.58	99.41	99.06	98.94	98.67	97.85	97.81	97.19	96.91	96.60
59	25.66	99.88	99.77	98.99	98.48	98.25	97.74	97.12	96.61	96.22
60	26.02	99.50	99.08	98.89	98.39	98.23	98.08	97.66	97.46	97.16
61	25.35	99.92	99.68	99.17	98.58	97.87	97.24	96.65	96.45	96.09
62	25.93	100.04	99.88	99.61	99.46	99.27	98.88	98.46	97.92	97.49
63	25.70	99.88	99.61	99.30	99.11	98.48	97.94	97.39	97.28	96.69
64	26.07	99.85	99.31	99.27	99.12	99.00	98.39	98.24	97.81	97.35
65	26.01	100.08	100.04	99.31	98.65	97.54	97.23	96.89	96.58	96.08
66	25.60	99.84	99.65	99.10	98.71	98.05	97.66	97.07	96.68	96.17
67	25.73	100.12	100.08	99.26	98.60	97.90	97.71	97.63	97.24	96.85
68	25.59	100.12	100.04	99.84	99.10	98.44	98.09	97.66	97.54	97.38
69	25.34	100.04	99.80	99.09	98.46	97.47	97.20	96.84	96.53	96.17
70	25.90	99.73	99.34	98.61	97.84	97.80	97.64	97.41	97.07	96.95
71	26.01	99.73	99.35	99.19	98.58	98.00	97.89	97.31	96.85	96.35
72	25.80	100.27	99.65	99.42	98.80	98.14	98.06	97.83	97.52	97.17
73	25.91	99.54	99.11	98.42	97.84	97.45	97.18	96.95	96.49	96.02
74	26.22	99.85	99.54	99.24	98.97	98.78	98.63	98.25	97.90	97.67
75	25.34	99.72	99.57	99.33	99.05	98.82	98.38	97.59	97.36	96.92
Avg.	25.72	99.92	99.65	99.23	98.75	98.30	97.97	97.56	97.23	96.87
Med.	25.70	99.92	99.68	99.24	98.71	98.23	97.94	97.59	97.28	96.92
st dev	0.27	0.22	0.31	0.36	0.42	0.53	0.50	0.53	0.53	0.56
Min.	25.30	99.41	99.06	98.42	97.84	97.45	97.18	96.65	96.45	96.02
Max.	26.22	100.27	100.08	100.04	99.46	99.27	98.88	98.46	98.23	97.80

**3.8 Data Set 3, 105°C, 60mA (Forward Voltage)**

No.	Forward Voltage (V)									
	0hr(Initial)	1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
51	3.187	3.151	3.130	3.150	3.142	3.142	3.135	3.148	3.148	3.145
52	3.186	3.151	3.130	3.147	3.139	3.144	3.135	3.153	3.151	3.149
53	3.191	3.154	3.134	3.160	3.148	3.153	3.145	3.158	3.155	3.154
54	3.191	3.155	3.136	3.165	3.146	3.148	3.164	3.159	3.156	3.155
55	3.196	3.160	3.138	3.167	3.151	3.157	3.156	3.162	3.159	3.157
56	3.214	3.151	3.130	3.145	3.150	3.145	3.131	3.134	3.148	3.157
57	3.191	3.155	3.136	3.160	3.157	3.149	3.137	3.185	3.155	3.156
58	3.185	3.156	3.137	3.158	3.176	3.148	3.139	3.141	3.157	3.155
59	3.175	3.154	3.131	3.152	3.148	3.146	3.141	3.155	3.154	3.153
60	3.178	3.158	3.138	3.166	3.144	3.151	3.149	3.179	3.161	3.159
61	3.155	3.143	3.123	3.130	3.133	3.128	3.128	3.144	3.142	3.139
62	3.190	3.160	3.137	3.163	3.171	3.148	3.160	3.152	3.159	3.157
63	3.168	3.157	3.135	3.159	3.147	3.145	3.153	3.164	3.158	3.153
64	3.162	3.158	3.136	3.156	3.152	3.146	3.144	3.150	3.156	3.154
65	3.160	3.157	3.135	3.159	3.158	3.143	3.144	3.168	3.157	3.152
66	3.170	3.161	3.140	3.167	3.166	3.155	3.145	3.192	3.159	3.158
67	3.169	3.157	3.137	3.147	3.137	3.151	3.142	3.175	3.151	3.147
68	3.175	3.153	3.131	3.147	3.141	3.149	3.149	3.173	3.157	3.148
69	3.170	3.158	3.138	3.160	3.145	3.149	3.141	3.192	3.158	3.156
70	3.174	3.160	3.141	3.163	3.165	3.148	3.147	3.170	3.161	3.156
71	3.168	3.159	3.140	3.168	3.148	3.146	3.151	3.155	3.158	3.155
72	3.170	3.158	3.137	3.156	3.169	3.147	3.138	3.176	3.160	3.155
73	3.143	3.134	3.113	3.131	3.138	3.124	3.123	3.192	3.131	3.133
74	3.170	3.154	3.138	3.154	3.160	3.146	3.141	3.161	3.154	3.155
75	3.154	3.131	3.113	3.156	3.136	3.124	3.124	3.144	3.134	3.129
Avg.	3.176	3.154	3.133	3.155	3.151	3.145	3.142	3.163	3.154	3.151
Med.	3.174	3.156	3.136	3.158	3.148	3.147	3.142	3.161	3.156	3.155
st dev	0.016	0.008	0.007	0.010	0.012	0.008	0.010	0.017	0.008	0.008
Min.	3.143	3.131	3.113	3.130	3.133	3.124	3.123	3.134	3.131	3.129
Max.	3.214	3.161	3.141	3.168	3.176	3.157	3.164	3.192	3.161	3.159



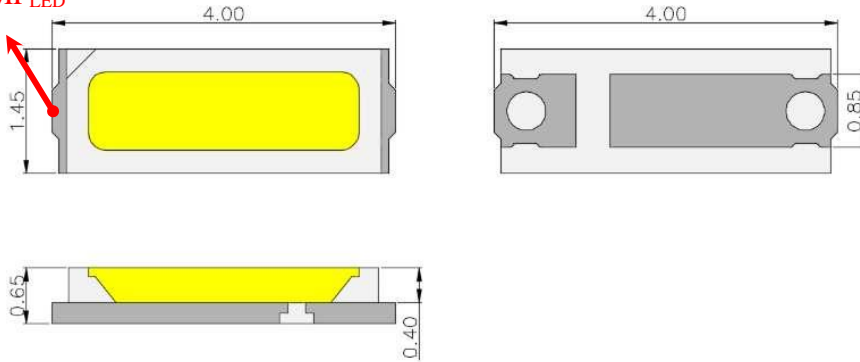
**3.9 Data Set 3, 105°C, 60mA (Chromaticity Shift)**

No.	u'	v'	CCT(K)	Chromaticity Shift ( $\Delta u'v'$ )								
	Ohr(Initial)			1000hrs	2000hrs	3000hrs	4000hrs	5000hrs	6000hrs	7000hrs	8000hrs	9000hrs
51	0.2588	0.5298	2768	0.0009	0.0010	0.0012	0.0006	0.0004	0.0006	0.0008	0.0010	0.0012
52	0.2587	0.5290	2774	0.0011	0.0011	0.0012	0.0008	0.0007	0.0003	0.0003	0.0007	0.0008
53	0.2591	0.5303	2758	0.0010	0.0010	0.0010	0.0024	0.0024	0.0025	0.0026	0.0030	0.0033
54	0.2582	0.5288	2785	0.0008	0.0010	0.0010	0.0015	0.0012	0.0006	0.0008	0.0006	0.0008
55	0.2642	0.5289	2659	0.0011	0.0014	0.0016	0.0021	0.0023	0.0017	0.0007	0.0010	0.0009
56	0.2612	0.5275	2728	0.0007	0.0008	0.0011	0.0010	0.0010	0.0015	0.0005	0.0023	0.0022
57	0.2587	0.5266	2784	0.0005	0.0006	0.0009	0.0012	0.0012	0.0017	0.0014	0.0010	0.0014
58	0.2593	0.5282	2763	0.0005	0.0006	0.0007	0.0012	0.0014	0.0018	0.0017	0.0014	0.0015
59	0.2595	0.5299	2751	0.0008	0.0009	0.0009	0.0014	0.0015	0.0021	0.0019	0.0017	0.0018
60	0.2570	0.5289	2809	0.0007	0.0007	0.0008	0.0013	0.0014	0.0016	0.0017	0.0015	0.0021
61	0.2618	0.5308	2700	0.0007	0.0006	0.0007	0.0014	0.0014	0.0019	0.0020	0.0016	0.0013
62	0.2549	0.5241	2881	0.0003	0.0005	0.0008	0.0013	0.0014	0.0019	0.0018	0.0015	0.0014
63	0.2570	0.5260	2825	0.0006	0.0006	0.0006	0.0013	0.0016	0.0021	0.0018	0.0018	0.0018
64	0.2581	0.5286	2788	0.0004	0.0005	0.0004	0.0010	0.0012	0.0017	0.0018	0.0016	0.0012
65	0.2590	0.5291	2767	0.0005	0.0005	0.0005	0.0012	0.0014	0.0018	0.0023	0.0018	0.0014
66	0.2579	0.5249	2808	0.0002	0.0004	0.0006	0.0011	0.0013	0.0018	0.0018	0.0016	0.0022
67	0.2588	0.5259	2785	0.0007	0.0009	0.0011	0.0027	0.0028	0.0027	0.0027	0.0028	0.0029
68	0.2600	0.5296	2742	0.0006	0.0008	0.0012	0.0013	0.0014	0.0013	0.0021	0.0017	0.0016
69	0.2577	0.5284	2797	0.0001	0.0004	0.0004	0.0013	0.0011	0.0011	0.0019	0.0026	0.0025
70	0.2570	0.5243	2834	0.0002	0.0006	0.0008	0.0009	0.0008	0.0011	0.0012	0.0013	0.0013
71	0.2560	0.5305	2823	0.0006	0.0006	0.0005	0.0011	0.0010	0.0012	0.0018	0.0017	0.0017
72	0.2584	0.5282	2783	0.0005	0.0006	0.0006	0.0012	0.0011	0.0010	0.0016	0.0013	0.0014
73	0.2577	0.5268	2804	0.0006	0.0006	0.0006	0.0012	0.0012	0.0013	0.0017	0.0017	0.0016
74	0.2550	0.5277	2860	0.0005	0.0006	0.0006	0.0013	0.0012	0.0012	0.0019	0.0016	0.0017
75	0.2577	0.5305	2788	0.0006	0.0006	0.0003	0.0012	0.0004	0.0009	0.0011	0.0006	0.0012
Avg.	0.2585	0.5281	2783	0.0006	0.0007	0.0008	0.0013	0.0013	0.0015	0.0016	0.0016	0.0016
Med.	0.2584	0.5286	2785	0.0006	0.0006	0.0008	0.0012	0.0012	0.0016	0.0018	0.0016	0.0015
st dev	0.0020	0.0019	47	0.0003	0.0002	0.0003	0.0005	0.0005	0.0006	0.0006	0.0006	0.0006
Min.	0.2549	0.5241	2659	0.0001	0.0004	0.0003	0.0006	0.0004	0.0003	0.0003	0.0006	0.0008
Max.	0.2642	0.5308	2881	0.0011	0.0014	0.0016	0.0027	0.0028	0.0027	0.0027	0.0030	0.0033

#### 4 - DUT Photo

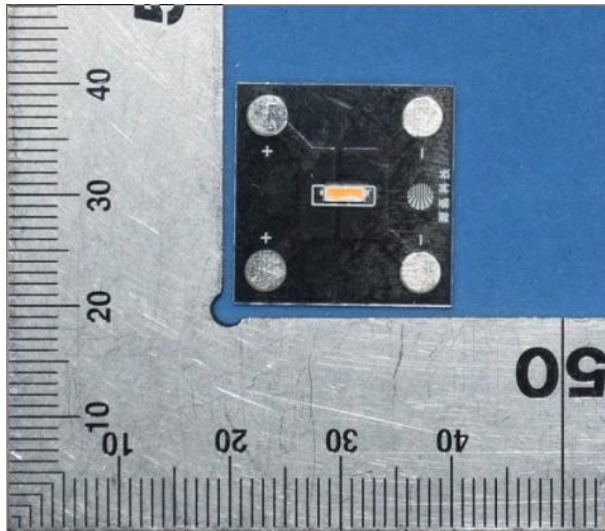
##### 4.1 Mechanical Dimensions

TMP<sub>LED</sub>



All dimensions are in millimeter

##### 4.2 DUT Photo



\*\*\*\*\*END OF REPORT\*\*\*\*\*